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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/289,208	04/09/1999	CHARLES A. HOWLAND	W0490/7007/R	8331

24222 7590 07/02/2003

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EXAMINER

GUARRIELLO, JOHN J

ART UNIT

PAPER NUMBER

1771

DATE MAILED: 07/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

89/289208

Applicant(s)

Howland

Examiner

John Guarriello

Group Art Unit

1971

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 2/5/2003, 4/9/2003, 4/15/2003.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1, 3, 4, 6-8, 10-22 is/are pending in the application.
Of the above claim(s) 16 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1, 3, 4, 6-8, 10-15, 17-22 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

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DETAILED ACTION

15. The Examiner acknowledges papers # 25-27, the change of address of 2/5/2003; Examiner Interview Summary of 4/9/2003; and the amendment response of 4/15/2003.

16. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

17. Claims 1 and 6 are objected to because of the following informalities: in claim 1, line 4, after “is” **at** should be deleted since the claim language is improper English. In claims 1 and 6, line 5, it is not clear what the phrase “said yarns comprise staple fiber” refer, this appears to refer to the “fill yarns”, or the “warp yarns”, or to both the “warp and fill yarns”. Appropriate correction is required.

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Claim Rejections - 35 USC § 103

18. Claims 1, 3, 4, 6-8, 10-13, 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan 5,087,499 in view of Chiou et al. 5,622,771.

Sullivan describes puncture resistant garments made from fibers which can be KEVLAR or SPECTRA, (Column 2, lines 12-23). Sullivan describes the fibers are processed into staple yarn which comprises a plurality of fibrils or fibers (which correspond to the claimed plurality of warp yarns and fill yarns), (column 2, lines 25-28). Sullivan describes the fibers or filaments can be coated, (column 2, lines 52-58). Sullivan describes examples of the fibers can be polyaramids as well as others which may be coated, (column 3, lines 60-65). Sullivan describes the fibers can be made into staple yarn, (column 3, lines 66-68). Sullivan describes the combination of fibers to make a puncture resistant garment, (column 3, lines 33-37). Sullivan describes the staple yarn is made of individual fibrils or fiber intertwined together, (which corresponds to the claimed interwoven plurality of the warp and fill), (column

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4, lines 15-16). Sullivan describes the yarn, staple yarn, can be woven (corresponds to the warp and fill) into a cloth (corresponding to the claimed protective fabric substrate), (column 5, lines 21-26). Sullivan differs from the claimed invention because it is silent about the density.

Chiou describes cover factor or density of the weave in a penetration resistant aramid article which is woven (corresponding to the claimed densely interwoven warp and fill yarns) in a tightly weave configuration, (see abstract). Chiou describes fabric tightness factor and cover factor which are names given to the density of the weave of a fabric, (column 1, lines 48-50; column 2, lines 60-64). Chiou describes a plurality of layers for penetration resistance, (column 4, lines 40-45). Chiou describes a yarn density of 70x70 ends, in Example 1, column 6, lines 15-20.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the woven yarns of Chiou with the density factor of 70x70 in the fabric of Sullivan motivated with the expectation that better properties of penetration resistance would be improved. Moreover,

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regarding the densely interwoven yarns, there is no quantification of the densely interwoven yarns in the claims, thus there is nothing in the current claims to distinguish such from the prior art. Contrary to applicant's arguments, there is nothing in the claims regarding the shape of the warp cross section. The Examiner notes applicant's discussion of the figures, but there is no language relating what is shown in the figures to the instant claims.

Regarding the staple fiber, it is the Examiner's position that Sullivan describes that individual fibrils or fibers of 1.86 inches in length provide improved puncture resistant characteristics, (column 5, lines 6-11) even though different lengths of fibrils or fibers can be used in a staple yarn which implies that the warp and fill can be the same. Since quantification is clearly found in the specification as to amount of this staple fiber and continuous filament, it would be routine in this art for one of ordinary skill to optimize the denier and crimp of the fibers and their combination, see *In re Boesch*, 617F.2d 272, 205 USPQ (CCPA 1980). The claimed invention is still found

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to be obvious to one of ordinary skill in this art when taking the invention as a whole.

19. Claims 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan 5,087,499 in view of Harpell 4,403,012.

Sullivan as above in paragraph # 18, except the polymeric coating is not stated.

Harpell '012 describes ballistic resistant fabric article with coated fibers, which coated fibers can be epoxy resins among others, (column 3, lines 44-68). '012 describes the coatings can be epoxy resins in composites or other ballistic resistant materials, (column 4, lines 15-60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the epoxy resin coating (corresponding to the polymeric coating) of Harpell '012 for the polymeric coating of Sullivan motivated with the expectation that the puncture resistance and ballistic resistance would be improved with the epoxy coating for the resulting fabric.

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Applicant's arguments regarding the coating of the fabric have been considered but they are not persuasive with the new grounds of rejection and, because Harpell '012 describes coating on fibers which can be epoxy resins, (column 3, lines 44-68). Harpell '012 describes these epoxy resins can be used in ballistic resistant materials, (column 4, lines 15-60). It is the Examiner's position that the claimed invention is still found to be obvious to one of ordinary skill in this art when taking the teachings of the prior art as a whole.

20. Rejections not maintained are withdrawn because of applicant's amendment to the claims, regarding the 112 rejections. Regarding the art rejections, new grounds of rejection are present.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Guarriello whose telephone

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number is 703-308-3209. The examiner can normally be reached on Monday to Friday from 8 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris, can be reached on (703) 308-2414. The fax phone number for the organization where this application or proceeding is assigned is 703-305-5408.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


John J. Guarriello:gj

Patent Examiner

June 23, 2003

June 27, 2003


TERREL MORRIS
SUPERVISORY PATENT EXAMINER
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